

IN THE CLAIMS

Please amend the following claims:

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1. A method of forming interconnect, comprising:
forming a dielectric layer over a substrate, the dielectric layer having trenches therein;
forming a barrier in the trenches and on a top surface of the dielectric layer;
depositing metal over the barrier; and
polishing the metal with a slurry that includes an abrasive harder than the metal and less hard than the barrier and wherein said abrasive comprises one or more materials selected from the group consisting of strontium titanate, apatite, diopase, iron, brass, fluorite, and azurite.
 2. The method of Claim 1, wherein the dielectric layer comprises an oxide of silicon, and the barrier is electrically conductive.
 3. The method of Claim 1, wherein the dielectric layer comprises a fluorinated oxide of silicon, and the barrier is selected from the group consisting of tantalum, and tantalum nitride.
 4. The method of Claim 1, wherein the abrasive has a Moh's hardness between approximately 3.5 and 6.
 5. The method of Claim 4, wherein the slurry has a pH between approximately 3.5 and 7.
 6. The method of Claim 4, wherein the slurry contains approximately 0.5% to 10% by weight of the abrasive.

7. The method of Claim 1, wherein the slurry contains an oxidizer comprising H_2O_2 .
8. The method of Claim 1, wherein polishing comprises chemical mechanical polishing.
10. (Amended) The method of Claim 1, wherein the slurry has a pH in the range of 3.5 to 7.
11. A method of polishing a first film overlying a second film wherein the second film is harder than the first film, comprising:
polishing the first film with a slurry comprising an abrasive having a hardness greater than a hardness of the first film and less than the hardness of the second film and wherein said abrasive comprises one or more materials selected from the group consisting of strontium titanate, apatite, diopase, iron, brass, fluorite, and azurite.
12. The method of Claim 11, wherein the first film comprises copper and the second film is comprises a material selected from the group consisting of tantalum and tantalum nitride.
14. (Amended) The method of Claim 11, wherein the abrasive comprises approximately 0.5 to 10 wt.% of the slurry.
24. A method of forming a damascene structure, comprising:
forming trenches in an insulating layer disposed on a substrate, the trenches having a bottom surface and side surfaces;
forming a barrier layer over a top surface of the insulating layer and over the bottom and side surfaces, the barrier layer having a first hardness;
forming a layer of metal over the barrier layer; and

removing the metal layer from over the that portion of the barrier layer that overlies the top surface of the insulating layer;

wherein removing the metal layer comprises polishing the metal with a slurry having an abrasive that is harder than the metal and less hard than the barrier layer and wherein said abrasive comprises one or more materials selected from the group consisting of strontium titanate, apatite, diopside, iron, brass, fluorite, and azurite.

25. The method of Claim 24, wherein the metal comprises copper, the barrier layer comprises tantalum nitride, and the dielectric layer comprises a fluorinated oxide of silicon; and further comprising removing the barrier layer by polishing with the slurry.

C1 31. (Amended) A method of forming an interconnect comprising:
forming a dielectric layer over a substrate, the dielectric having trenches therein;
forming a barrier in the trenches and on top of the surface of the dielectric layer;
depositing metal over the barrier;
polishing the metal with a slurry that includes an abrasive harder than the metal and less hard than the barrier and less hard than said dielectric layer; and
polishing said barrier from the top surface of said dielectric layer with said slurry until said barrier is removed from the top surface of said dielectric layer.